

Absolute encoders - singleturn

Standard optical	5852 / 5872 (shaft / hollow shaft)	Parallel, highspeed
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The singleturn encoders 5852 and 5872 with parallel interface and optical technology achieve a very high refresh rate of the position data of 40 kHz with a resolution of max. 14 bits.



High rotational speed	Temperature range	High protection level	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Optical sensor

Adaptable

- Supply voltage 5 V DC or 10 ... 30 V DC.
- Cable or connector M23.

Fast

- Refresh rate of the position data 40 kHz.

Order code	8.5852	. XX XX	. XXX 1
Shaft version	Type	a b c	d

- a Flange, shaft**
 12 = clamping flange, ø 58 mm [2.28"]
 with shaft 10 x 20 mm [0.39 x 0.79"]
 21 = synchro flange, ø 58 mm [2.28"]
 with shaft 6 x 10 mm [0.24 x 0.39"]

- b Interface / supply voltage**
 1 = parallel (CMOS-TTL) / 5 V DC
 3 = parallel / 10 ... 30 V DC

- c Type of connection**
 1 = axial cable, 1 m [3.28'] PVC
 A = axial cable, special length PVC *)
 2 = radial cable, 1 m [3.28'] PVC
 B = radial cable, special length PVC *)
 3 = axial M23 connector, 17-pin
 5 = radial M23 connector, 17-pin

*) Available special lengths (connection types A, B):
 2, 3, 5, 8, 10, 15 m [5.56, 9.84, 16.40, 26.25, 32.80, 49.21']
 order code expansion .XXXX = length in dm
 ex.: 8.5852.121A.E031.0030 (for cable length 3 m)

- d Code type and division**
 E03 = 360 gray-excess
 E01 = 1000 gray-excess
 E14 = 1440 gray-excess
 E20 = 2000 gray-excess
 G10 = 1024 (10 bit) gray
 G12 = 4096 (12 bit) gray
 G13 = 8192 (13 bit) gray
 G14 = 16384 (14 bit) gray

Optional on request
 - other code types
 - other divisions

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Order code	8.5872	.XXXXX	.XXX1
Hollow shaft	Type	a b c d e	
a Flange	1 = with spring element, short 3 = with stator coupling, \varnothing 65 mm [2.56"]	c Interface / supply voltage	1 = parallel (CMOS-TTL) / 5 V DC 3 = parallel / 10 ... 30 V DC
b Through hollow shaft	6 = \varnothing 10 mm [0.39"] 8 = \varnothing 12 mm [0.47"]	d Type of connection	1 = radial cable, 1 m [3.28'] PVC 2 = radial M23 connector, 17-pin
		e Code type and division	E03 = 360 gray-excess E01 = 1000 gray-excess E14 = 1440 gray-excess E20 = 2000 gray-excess G10 = 1024 (10 bit) gray G12 = 4096 (12 bit) gray G13 = 8192 (13 bit) gray G14 = 16384 (14 bit) gray
			<i>Optional on request</i> - other code types - other divisions

Reverse count direction

(Only with output type 3 and up to 13 bit gray code available)

Normal operation:

Rising code values when shaft turning clockwise (cw). Falling code values when shaft turning counterclockwise (ccw), top view of shaft.

Reverse operation:

Output MSB inverted (pin 16) instead of output MSB (pin 3) connected. Falling code values when shaft turning clockwise (cw). Rising code values when shaft turning counterclockwise (ccw), top view of shaft.

Mounting accessory for shaft encoders		Order no.
Coupling	bellows coupling \varnothing 19 mm [0.75"] for shaft 6 mm [0.24"]	8.0000.1102.0606
	bellows coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1102.1010
Mounting accessory for hollow shaft encoders Dimensions in mm [inch]		Order no.
Torque pin, \varnothing 4 mm	with fixing thread	8.0010.4700.0000
for flange with spring element (flange type 1)		
Cables and connectors		Order no.
Preassembled cables	M23 female connector with coupling nut, 17-pin, ccw single-ended 2 m [6.56'] PVC cable	8.0000.6741.0002
Connectors	M23 female connector with coupling nut, 17-pin, ccw	8.0000.5042.0000

Further Kübler accessories can be found at: kuebler.com/accessories
Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

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Technical data

Mechanical characteristics		
Maximum speed	shaft version	12000 min ⁻¹
	hollow shaft version	6000 min ⁻¹ 1)
Mass moment of inertia	shaft version	approx. 1.8 x 10 ⁻⁶ kgm ²
	hollow shaft version	approx. 6 x 10 ⁻⁶ kgm ²
Starting torque at 20 °C [68 °F]	shaft version	< 0.01 Nm
	hollow shaft version	< 0.05 Nm
Load capacity of shaft	radial	80 N
	axial	40 N
Weight		approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529	shaft version	IP65
	hollow shaft version	IP66
Working temperature range		-20 °C ... +85 °C 2)
		[-4 °F ... +185 °F] 2)
Material	shaft / hollow shaft	stainless steel
Shock resistance acc. EN 60068-2-27		2500 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6		100 m/s ² , 10 ... 2000 Hz

Approvals	
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	EMC Directive 2014/30/EU
	RoHS Directive 2011/65/EU

Electrical characteristics (parallel interface)		
Supply voltage (+V)	5 V DC (±5 %)	10 ... 30 V DC
Output driver	CMOS-TTL	Push-pull
Power consumption (no load)	typ.	40 mA
	max.	75 mA
Permissible load / channel	max. +0.5 / -2.0 mA	max. +/- 10 mA
Refresh rate of the position data	40000/s	40000/s
Signal level	HIGH	min. 3.4 V
	LOW	max. 0.3 V
Rising edge time t_r (without cable)		max. 0.2 μs
		max. 1 μs
Falling edge time t_f (without cable)		max. 0.2 μs
		max. 1 μs
Short circuit proof outputs 3)	yes	yes
Reverse polarity protection of the supply voltage	no	yes

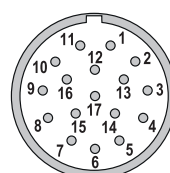
Terminal assignment

Interface	Type of connection	Cable (isolate unused cores individually before initial start-up)																	
		Signal	0 V	+V	1	2	3	4	5	6	7	8	9	10	11	12	13	14 (MSB)	
1, 3	5852: 1, 2, A, B																		
	5872: 1	Core color:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY	RD	WH	BN	WH	YE	

Interface	Type of connection	M23 connector, 17-pin																		
		Signal	0 V	+V	1	2	3	4	5	6	7	8	9	10	11	12	13	14 (MSB)	PH	
1, 3	5852: 3, 5																			
	5872: 2	Pin:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	PH

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder ground GND (0 V)
- Signal: 1 = MSB; 2 = MSB-1; 3 = MSB-2 usw.
- MSB: MSB inverted
- PH ⏏: Plug connector housing (shield)

Top view of mating side, male contact base



M23 connector, 17-pin (parallel)

1) For continuous operation max. 1500 min⁻¹.
 2) 70 °C [158 °F] for 14 bit version.
 3) If supply voltage +V correctly applied.

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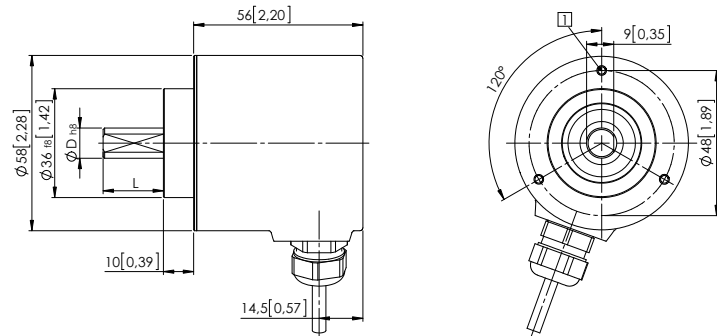
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, \varnothing 58 [2.28]
with shaft, \varnothing 10 [0.39]

Flange type 12

1 3 x M3, 5 [0.20] deep



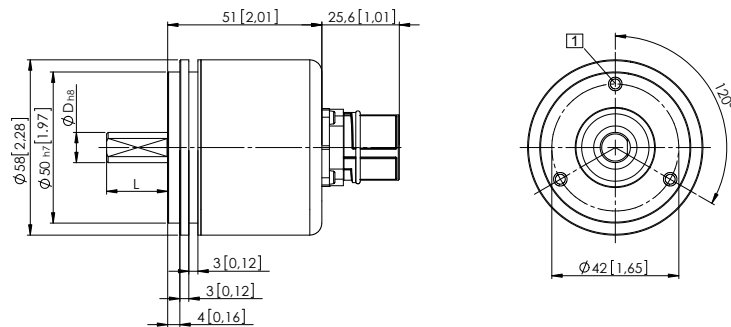
D	Fit	L
6 [0.24]	h8	10 [0.39]
10 [0.39]	f7	20 [0.79]

Synchro flange, \varnothing 58 [2.28]

with shaft, \varnothing 6 [0.24]

Flange type 21

1 3 x M4, 10 [0.39] deep



D	Fit	L
6 [0.24]	h8	10 [0.39]
10 [0.39]	f7	20 [0.79]

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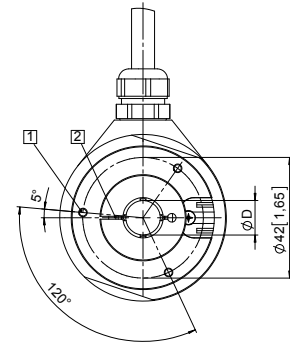
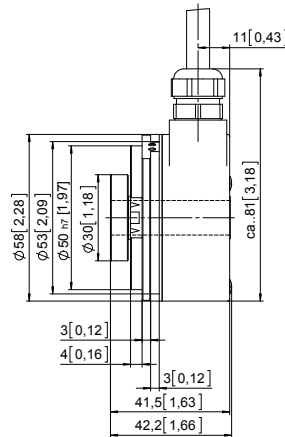
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Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, short Flange type 1

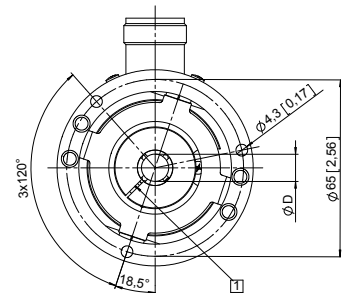
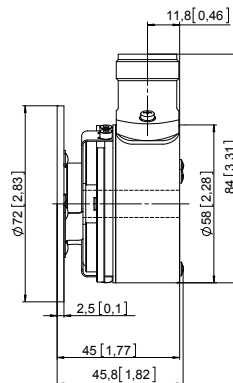
- 1 3 x M3, 5 [0.20] deep
- 2 Recommended torque for the clamping ring 0.6 Nm



D	Fit
10 [0.39]	H7
12 [0.47]	H7

Flange with stator coupling, ø 65 [2.56] Flange type 3

- 1 Recommended torque for the clamping ring 0.6 Nm



D	Fit
10 [0.39]	H7
12 [0.47]	H7